

# UTILITIES

*There are many challenges facing the community in providing utilities in the future. As the infrastructure of the community ages, increased maintenance and replacement will be necessary. Sometimes the construction of new utilities conflicts with existing land uses. New technologies may be able to reduce some impacts while others may increase potential impacts. Perhaps the greatest challenge will be to provide for financing all of these improvements — a topic discussed in the “Future Conditions - Financial Resources” section.*

*This section first looks at a number of overall guiding principles, and then considers the future of individual utilities including water, wastewater, stormwater management and flood control, solid waste, electric services, street maintenance, natural gas service, cable franchise, and telecommunications.*

## OVERALL GUIDING PRINCIPLES

Continue the City’s growth policy of contiguous urban growth. Urban development will occur in areas immediately abutting the city that reflect a logical and timely extension of urban infrastructure.

The City of Lincoln shall only provide water and wastewater service to properties located within the corporate limits of the city. This policy provides for contiguous growth, allows for efficient long range planning and cost-effective construction and management of the system.

## WATER GUIDING PRINCIPLES

Development proposals should ensure that there is adequate quantity and quality water available to serve their project without impacting adjacent ~~water service~~ customers.

Development actions should not impact Wellhead Protection areas or the municipal water wells serving towns.

Utility improvements shall be in accordance with the Lincoln Water System Facilities Master Plan and the Comprehensive Plan. The Lincoln Water System Facilities Master Plan will guide future actions and serve as the basis for facilities planning and improvements.

## WASTEWATER GUIDING PRINCIPLES

The City's collection system, in general, will continue to be a gravity fed system that is designed to accommodate urbanization of drainage basins and sub-basins. This system encourages orderly growth within the natural drainage basin boundaries. This policy encourages urban growth from the lower portion of the drainage basin and prohibits pumping of wastewater across basin boundaries. ~~Explore alternative methods, such as lift stations, where practical.~~

Development proposals should ensure that there is an adequate on-site wastewater system to serve their project without impacting adjacent properties. However, in urban areas, it may be necessary to create assessment districts if a sewer line crosses abutting properties.

Utility improvements shall be in accordance with the Lincoln Wastewater Facilities Plan and the Comprehensive Plan. The Lincoln Wastewater Facilities Plan will guide future actions and serve as the basis for facilities planning and improvements.

## WATERSHED MANAGEMENT GUIDING PRINCIPLES

Watershed planning will continue in order to be proactive and integrate stewardship principles for land conservation, stream and wetland buffers, better site design, Best Management Practices (BMP), and erosion and sediment control. The natural drainage system can serve multiple benefits, including wildlife habitat and recreation.

The community should encourage site designs that are compatible with the natural characteristics of the site, clustering development, minimizing grading and impervious cover, and preserving site hydrology to the maximum extent possible. Naturalized or bioengineered solutions to drainage issues should be used wherever possible.

In new growth areas, the City of Lincoln and Lancaster County should have a policy of No Adverse Impact, with a goal of ensuring that the action of one property owner does not adversely impact the flooding risk for other properties.

In concert with the findings of the Mayor's Floodplain Task Force and the assumptions used in crafting this Plan, future urban development will be outside of the floodplain and floodway. ~~This helps new development avoid potential flood risks and preserves the important functions of the floodplain. Keeping development outside of the floodplain preserves flood storage and other natural and beneficial functions of floodplains. It also avoids the long-term, cumulative impact of development in the floodplain.~~

*Best Management Practices (BMP) are defined as measures that remove or prevent pollutants from entering stormwater. Examples of BMP include stabilizing all areas disturbed during construction and preserving natural drainageways. It is the City's policy to encourage the use of BMP in new development and redevelopment.*

## SOLID WASTE GUIDING PRINCIPLES

No out-of-county waste is accepted for landfill disposal. This policy reserves landfill capacity for city and county residents and allows administration of programs under existing authorities.

The City policy of privately owned and operated collection of refuse and recyclables coupled with public ownership, operation and financing of disposal and selected integrated solid waste management services will continue during the planning period.

## ELECTRICAL GUIDING PRINCIPLES

Lincoln Electric System will be the sole electrical utility within the City of Lincoln.

Norris Public Power and Lincoln Electric System should continue their cooperative effort in regards to future growth areas of Lincoln and changes in service boundaries between the two utilities.



## LINCOLN WATER SYSTEM AND COUNTY WATER RESOURCES

The Public Works and Utilities Department ~~has~~ completed the Lincoln Water System Facilities Master Plan in 2002. The plan is a guide for short term and long term improvements to the infrastructure of the Lincoln Water System during the planning period. The Facilities Master Plan should be updated to take into consideration the areas added to Tier I, as well as potential service extensions ~~beyond Lincoln's anticipated future service limits.~~

The projected maximum day water demand for year 2025 is 141 million gallons per day (MGD), and for 2050 is 205 MGD based on the assumed population growth rate of 1.5% per year. Additional supply, treatment, and transmission improvements will be necessary to meet these growing demands. The well fields currently owned by the Lincoln Water System have a projected maximum capacity ~~below~~ approximately equal to the projected need for the year 2050. Additional well field property and water rights will need to be acquired in the planning period to meet these demands.

Lincoln's drinking water currently meets all of the Federal regulations regarding water quality. As new drinking water regulations are implemented, additional treatment may be required.

If substantial additional residential development occurs on acreages and in the towns served by the Rural Water Districts, additional improvements to their systems will probably be necessary.

Many Lancaster County water users are on private well systems. The Lincoln-Lancaster County Health Department enforces standards on wells. The Lower Platte South Natural Resources District is maintaining a Groundwater Management Plan for the County to ensure the protection of this resource.

## STRATEGIES

Property owners are responsible for the cost to alter the boundaries of the Rural Water District and have their land removed from the district's service area, prior to annexation. The City of Lincoln will be the sole public water district within the city limits. The City of Lincoln and Lancaster Rural Water District No. 1 and Cass County Rural Water District No. 2 should ~~explore options to provide for the systematic expansion of the city water service into the jurisdiction of the rural water districts.~~ work toward a cooperative agreement regarding changes in service boundaries between the two utilities.

Continue to encourage water conservation practices with the development of the City and County.



## LINCOLN WASTEWATER SYSTEM AND COUNTY AREAS

The Public Works and Utilities Department has completed the Lincoln Wastewater Facilities Plan. The plan is a guide for short term and long term improvements to the infrastructure of the Lincoln Wastewater System during the planning period, as well as potential service extensions beyond Lincoln's anticipated future service limits.

Within the planning period a new Southwest Wastewater Facility will be needed. A process to acquire a site for this facility was begun in 2005. The City should work on the design of this facility to minimize impacts on adjacent properties and natural resources.

### STRATEGIES

Maintain and expand programs to recycle and reuse treated wastewater effluent and bio-solids where appropriate.

Much of Lancaster County is not on a community wastewater system, but is served by private, on-site, waste disposal through septic systems and lagoons. Lancaster County has adopted standards for on-site wastewater standards for on-site wastewater treatment systems that are enforced through the Lincoln-Lancaster County Health Department. Larger point sources and community systems are reviewed and approved by the State of Nebraska Department of Environmental Quality.

Encourage programs to minimize impacts of treatment facilities on adjacent properties and natural resources.



## COMPREHENSIVE WATERSHED MANAGEMENT

The City of Lincoln is in the process of developing an integrated watershed management program combining previously separate floodplain and stormwater management initiatives. This approach recognizes that floodplains, tributaries, and upland areas are all part of a comprehensive, integrated watershed system.

A comprehensive watershed management program will need to incorporate a range of strategies including land use planning, conservation efforts, appropriate standards for floodplains and stormwater, flood warning system development/expansion, stream stabilization, stormwater storage basins, and other structural flood control efforts.

As part of the overall watershed management program, the City is also developing a Master Watershed Management Plan. This plan will provide information and computer models to aid in analyzing stormwater management alternatives. A Beal Slough Stormwater Master Plan has already been prepared and adopted by the City. Similar management plans for other basins will be created and implemented by the City. Such plans are formulated in cooperation with other local, state and federal agencies.

A comprehensive approach to basin planning is crucial as development expands into new watersheds around the Lincoln city limits. Basin master plans ultimately need to be integrated into a unified watershed management master plan for the City of Lincoln and its projected growth areas. Ideally, a watershed master plan would be completed and adopted prior to urban development occurring within a new basin. This would allow projects and recommendations

in the master plan to be considered during the review of specific development proposals.

Regional detention sites should be identified and sites reserved in early planning stages. Master planning and the performance and adequacy of stormwater storage basins to prevent increases in peak flows will require continued assessment with the growth of the City. Upstream detention is critical to preventing further increases to the floodplain. Detention facilities should be identified and developed in a manner that causes minimal adverse impact to existing residential, agricultural and other land uses.

## **FLOODPLAIN MANAGEMENT**

In April of 2003, the Mayor's Floodplain Task Force concluded 20 months of work that resulted in floodplain recommendations for the City and County. The Task Force made a clear distinction between recommendations for the "Existing Urban Area" versus "New Growth Areas." "Existing Urban Area" was defined as those areas inside the City limits at the time a new standard is adopted as well as those areas outside the City limits which have a zoning designation other than AG - Agricultural or AGR - Agricultural Residential at the time a new standard is developed. "New Growth Areas" were defined as those areas outside the City limits and zoned AG -Agricultural or AGR - Agricultural Residential at the time a new standard is adopted.

There was general consensus on the Task Force that there would be additional challenges and a greater burden to meet higher floodplain standards within the existing urban area, where pre-existing zoning, lot size, existing homes and businesses, and the built environment in general would be expected to have greater constraints than newly developing areas.

An important consideration for New Growth Areas was the current designation in the Comprehensive Plan of the majority of floodplain areas as Green Space, Environmental Resources, or Agricultural Stream Corridors to identify that future urban development will be outside of the floodplain and to designate land uses compatible with the functions of the floodplain. This supports the opportunity to reduce the risk of flood damages to life and property and to preserve the important functions of floodplains by designating areas for future urban development outside of floodplain and floodway areas. Designating areas for development outside of floodplains and floodways would have the additional benefit of reducing the extension of public infrastructure to develop flood prone areas where future flood damages may occur.

Fifteen policy area recommendations were ultimately proposed by the Mayor's Floodplain Task Force for New Growth Areas, and they are embodied in the strategies herein. The overriding policy ~~recommendation~~ for the floodplain is a "No Adverse Impact" policy for the City and County, which means that the community has a goal of insuring that the action of one property owner does not adversely impact the flooding risk for other properties. The majority of other policy area recommendations relate back to and support this umbrella concept. An important next step will be to bring forward floodplain policies and standards that address the Existing Urban Area.

## **STRATEGIES**

Create a stormwater utility, as a division of the Public Works and Utilities Department, to provide for a steady revenue source as well as an organizational structure to address the growing needs of the stormwater and watershed management system.

Use public projects as an opportunity to set positive examples for the community relative to stormwater and floodplain management. Seek opportunities for "Rain to Recreation" project approaches that reduce flood damages, protect water quality and natural areas, while providing for recreational and educational opportunities so as to realize multiple benefits.

Develop project approaches which view stormwater as an asset, by working with the natural topography and using wetlands, floodplains, and natural drainage corridors as natural ways to manage flood flows and stormwater run-off.

Designate areas for future urban development outside of floodplain and floodway areas to avoid introducing new development to flood risks and to preserve the important functions of the floodplain.

Opportunities should be sought for the reclamation of floodplain functions through the acquisition and relocation of structures and the re-establishment of natural or open space areas.

Give special consideration to the Salt Creek floodplain from Van Dorn Street to Superior Street where the FEMA Flood Insurance Study recommends preserving flood storage so as not to increase flood heights greater than one foot.

Utilize naturalized or bioengineered solutions to drainage issues wherever possible.

Develop a Watershed Management Master Plan for Lincoln and future growth areas. Integrate existing neighborhoods and growth areas into watershed planning.

Utilize basin master plan recommendations and components as analysis tools to be referenced and compared with proposed development within the basin, and as a guide in the preparation of future capital improvement projects.

Seek broad public participation in the location and design of specific watershed management projects. The relative benefits of the projects to be evaluated should include impacts on the flood hazards, water quality, channel integrity, natural character, bridges, culverts, and existing public and private structures.

Future master planning efforts for largely undeveloped basins will rely more heavily on proactive better management practice (BMP) measures and the conservation of existing natural drainage features to most effectively manage stormwater and floodplains. Designs of human-made features should seek to utilize bioengineering and other naturalized techniques, incorporating trail systems and other linear park features where possible.

~~Implement a policy of No Adverse Impact in New Growth Areas through the adoption of higher standards, the encouragement of best management and building practices, the use of best available study information, and other recommendations of the Mayor's Floodplain Task Force that support this policy.~~

Improve the accuracy of floodplain mapping and make it a priority to which specific resources are dedicated. Continue to develop a comprehensive, watershed approach to floodplain mapping.

Preserve and enhance vegetative buffers along stream corridors to slow the flow of stormwater, filter pollutants, protect the biological health of the stream, and conserve other natural functions of the floodplain.

Retain City or County property in the floodplain in public ownership, and consider the purchase of easements or land when other publicly-owned property in the floodplain is proposed for surplus. Retain conservation easements to protect floodplain functions where unusual circumstances merit the consideration of surplus floodplain property.

Develop and implement a floodplain buyout program for the City and County, which is sensitive to the need to minimize impacts on neighborhoods and historic districts and places a special emphasis on sites that provide multiple benefits.

Reinforce accountability and disclosure laws regarding real estate transactions, enhance education efforts to notify prospective buyers, and improve methods for assessing and taxing floodplain properties, especially land held in conservation easements.

The following watershed studies are adopted in order to provide guidance to watershed management activities within the basin.

- Stevens Creek Watershed Study and Flood Management Plan, 1998 (for rural watershed).
- Beal Slough Stormwater Master Plan, May 2000.
- Southeast Upper Salt Creek Watershed Master Plan, 2003.
- Stevens Creek Watershed Master Plan, 2005.

## SOLID WASTE

### SOLID WASTE MANAGEMENT

The Bluff Road Sanitary Landfill is projected to be at capacity near the year ~~2025~~ 2030 based on current generation rates and the projected population growth rate of 1.5 percent per year. Planning for expansion of the Bluff Road Landfill on City owned property just east of the existing site is anticipated. The City policy of public ownership, operation and financing of integrated solid waste management services is anticipated to continue during the planning period. This additional landfill area has not been permitted by the State of Nebraska Department of Environmental Quality.

The North 48th Street construction and demolition landfill ~~is estimated life is 17 years (Year 2019)~~ to be at capacity in the year 2021 based on current generation rates and projected rates of growth. Thus, a new facility for handling construction and demolition debris will need to be sited during the planning period, starting in 2014. During the planning period the North 48th Street construction and demolition landfill and the old solid waste landfill closure shall be completed and may be returned to public use. The N. 48th Street transfer station and recycling areas are scheduled to remain.

Additional multi-material recycling sites will be required in each new development area to provide for convenient use by residents in growth areas. The growth of population in the County will also require additional recycling sites in villages in the County. Southwest Lancaster County would have the higher priority for new sites.

Other methods for the collection of recyclables, such as expansion of a curbside pick-up program to a city and county-wide basis may become economically feasible during the planning period and will continue to be evaluated on a periodic basis throughout the planning period.

Development, maintenance and ultimate closure of the Bluff Road Landfill, as well as daily operations, are funded by a fee collected for disposal of wastes in the landfill. Other solid waste management programs, such as recycling drop off program, composting, transfer station, construction and demolition debris landfill, closure of the old 48<sup>th</sup> Street landfill, household hazardous waste collections and the special waste permitting program are funded by a combination of user fees and an occupation tax assessed to refuse haulers collecting refuse in the city or in the county and utilizing the Bluff Road Landfill for disposal. These forms of financing for solid waste management are anticipated to continue during the planning period.

### STRATEGIES

Develop standards for future commercial and industrial development to ensure proper space for separation and handling of recyclables and solid waste. Investigate amending zoning ordinances to encourage new commercial developments to provide space for recycling drop-off facilities.

Discourage future urban acreage developments in the area around the Bluff Road landfill and LES power generating operations, which are located between N. 56th and N. 84th Streets. Acreage development could impact the current and future landfill and LES operations.

Coordinate development proposals with the Lincoln-Lancaster County Health Department, Environmental Health Division.

Create a county-wide integrated, efficient, environmentally safe and conservation-oriented recycling and waste management system. Promote and support markets for waste materials and recycled products.

## **E**LECTRIC SERVICE

In January 2001, Norris Public Power District (Norris) and Lincoln Electric System (LES) formalized a Joint Planning and Service Area Adjustment Agreement which both utilities support as a way to more efficiently serve their customers and to allow for the expansion of Lincoln and the LES service area.

The Norris/ LES Agreement established a “Joint Use Area” which is primarily east and southeast of Lincoln. LES will provide all of the power, but both LES and Norris will own facilities in the area. The proposed growth areas will entail some additional joint efforts, but basically would still be covered under the Norris/LES Agreement. LES and Norris may amend this joint area in the future, without needing to amend this figure in the Plan.

By the year 2030, the LES peak load is projected to increase by about 470 megawatts (MW) to a peak load of 1235 MW. LES will need to build new 115 and 345-kilovolt (kV) lines in growth areas in order to serve the new development. In addition, LES will need to acquire build several new substation sites to serve these new growth areas.

## **STRATEGIES**

As LES plans new transmission line routes, it will continue its policy of examining multiple options and conducting public forums on proposed routes in order to minimize the impact of new lines on residential and agricultural uses as much as feasible.

Continue, and amend as necessary, the Norris/LES Agreement which provides for cooperative planning and utility service in Lincoln and Lancaster County.

Within the City of Lincoln, wherever feasible and affordable, implement a phased program to relocate overhead utility lines underground.

Continue to encourage energy conservation practices with the development of the City and County.

## **WIND ENERGY**

Lincoln Electric System currently operates two wind turbines in the county. LES is encouraged to take advantage of available federal and state incentives to pursue the development of wind and other renewable generation technologies to the extent they are feasible, economical, and consistent with LES power supply needs.

## **S**TREET MAINTENANCE

As the City grows, additional maintenance services facilities will be needed. These facilities often require 24 hour operation and space for heavy equipment and trucks. The siting of new facilities will be done after examining



multiple options and conducting public forums on proposed sites in order to minimize the impact of facilities on future or existing residential uses. Locations near or in heavy commercial districts may be necessary, though this may entail additional land costs.

## NATURAL GAS SERVICE

As the community and the nation grow, additional pipeline facilities will be required. Most of these lines are proposed and developed by private companies. The Health Department has expressed concerns about the location of current and future pipelines and their potential impact during an accident on adjacent residential land uses. Residential land uses will be discouraged from directly locating adjacent to existing or planned pipelines. However, pipeline locations are necessary and should be accommodated within the County in locations that will not impact the public health.

## CABLE FRANCHISE

Continued cable television and ~~high speed internet data services~~ access to residential and business customers in the city, rural areas, towns and villages is important to the economic health of the community. Future lines and facilities will be accommodated within the community, as long as these facilities do not significantly impact adjacent land uses or other utilities.

Within the City of Lincoln, wherever feasible and affordable, implement a phased program to relocate overhead utility lines underground.

## TELECOMMUNICATIONS

Expansion of residential and business services, including ~~cellular phone networks, high speed internet access~~ wireless communication networks, broadband internet access, and fiber optic networks will continue throughout the area.

Within the City of Lincoln, wherever feasible and affordable, implement a phased program to relocate overhead utility lines underground.

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